

# ANNALS OF SURGERY.

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## A STUDY OF ONE HUNDRED AND SEVENTY CASES OF CANCER.<sup>1</sup>

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IN the present communication I have attempted to present the facts pertaining to all the cases of cancer which have been admitted to the surgical wards of the Methodist Episcopal Hospital in Brooklyn from its opening in December, 1887, until October 31, 1893, the period covered being thus one of about six years.

My colleague on the surgical staff of this hospital, Dr. Fowler, has freely permitted me to include with my own cases those which have been under his care, so that this report therefore represents the work of the institution as a whole. In the collation of the cases, and especially in the very onerous labor of ascertaining the ultimate fate of patients who have been discharged from the hospital, I have received much valuable assistance from a number of gentlemen who have been former members of the house staff.

The diagnosis in all operated cases, with but few exceptions, has been confirmed by the minute examinations of the pathologists of the hospital, Drs. Hodenpyl and Belcher. In a very large proportion of the cases, unfortunately, the patients presented themselves at the hospital when the disease was already in so advanced a state of development that no minute

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examination by a pathologist could add any positiveness to the diagnosis.

By the term cancer, I mean those new growths which, after they have once begun their formation, steadily continue the accretion of their own peculiar tissue, invade and replace adjacent tissues, progress at their periphery while processes of necrosis cause the melting down of parts earlier developed, and, parasite-like, at the expense of the tissues among which they develop, continue their progressive invasions and necroses, unchecked by any resisting power in the normal tissues, either already inherent in it or that can be brought to it by any mode of living or of medication. To such growths the generic term of *cancer* has long been applied, and in my judgment it may well be retained as a general term to embrace the whole class of malignant neoplasms, as a clinical term equally applicable both to those growths which are of epithelial origin, the *carcinomata*, and to those which originate in the fixed tissue-cells, the *sarcomata*.

*Classification.*—Of the entire number of cases under observation, 136 belonged to the *carcinomata*, 34 to the *sarcomata*; 63 were males, 107 were females,—the preponderance of females being due to the large relative number of cases of carcinoma of the female breast and of the uterus. Of the *carcinomata*, 93 were females and 43 were males, a proportion of slightly more than 2 to 1; of the *sarcomata*, 14 were females and 20 were males, the preponderance as to sex being reversed, though in not so marked a disproportion as in the *carcinomata*.

*Age.*—Of the *carcinomata*, 5 cases were in patients between the ages of 20 and 30; 18 between 30 and 40; 33 between 40 and 50; 48 between 50 and 60; 26 between 60 and 70; 4 between 70 and 80, and 2 in persons who were 80 years of age or over; 83 per cent. of all being over 40 years of age.

Of the *sarcomata*, 5 cases were in patients less than 20 years of age; 3 between 20 and 30; 10 between 30 and 40; 6 between 40 and 50, and 10 50 years of age or over; the youngest being  $1\frac{1}{2}$  and the oldest 78 years of age; 53 per cent. of all were less than 40 years of age.

## CARCINOMATA.

Following the classification as to regions of the body adopted for the surgical statistics of the hospital in general, the cases of carcinoma were distributed as follows: Group I, face, nose, and mouth, 19 cases; II, neck, 7 cases; III, breast, 31 cases; IV, abdomen, 17 cases; V, urinary organs, 5 cases; VI, male generative organs, 5 cases; VII, female generative organs, 34 cases; VIII, rectum, 16 cases; IX, extremities, 2 cases.

## I. FACE, NOSE, AND MOUTH.

The first group, *face, nose, and mouth*, was made up of 4 cases of carcinoma of the nose; 2 of carcinoma of the cheek; 1 of the auricle; 2 of the lip; 2 of the tongue; 1 of the tonsil and pharynx; 1 of the naso-pharynx, and 6 of the lower jaw 19 in all.

All were subjected to operation, except one of extensive disease of the nose, in a man of sixty-four years of age, who declined operative treatment, and returned to his home, after a very brief stay in the hospital, unimproved.

In 2 cases of limited carcinoma of the skin upon the side of the nose, wide extirpation, followed by covering in of the defect by a plastic operation, was done with success. Only eight months, however, have elapsed since the operations, so that the ultimate benefit from treatment cannot be yet determined. A third similar case, in a man of eighty-two years, remained free from recurrence until his death from other disease eighteen months later.

Of the 2 cases of carcinoma of the cheek, 1, a woman of fifty-six years, is a recent case, in which, after wide extirpation involving the whole thickness of cheek, immediate union has been secured. The second case, a man of sixty-nine years, was subjected not only to extirpation of the cheek, but also of the corresponding half of the lower jaw on account of the apparent involvement of its periosteum in the growth. Prompt recovery followed, and he remained free from recurrence at this point during the remainder of his life, a period of four years. After four years, however, he

developed carcinoma of the testicle, with involvement of the pelvic glands, from which he died a few weeks after an operation for the removal of the affected testicle.

In the case of epithelioma of the auricle, free extirpation of all the affected tissue, with an abundant zone of sound tissue, was done in a woman aged sixty years. At the present date, fifteen months after operation, there is no sign of recurrence.

The cases of lip cancer were both in men sixty-six years of age. Of one case no subsequent history had been obtained. In the other there is no recurrence, two years having now elapsed.

The tongue cancers were both in men, one sixty-two, and the other eighty years of age. In both the organ was extensively affected, and the adjacent cervical glands were involved. In the younger of the two the floor of the mouth was also involved. In both extirpation of the diseased tissues of the mouth and neck was done after preliminary ligation of the lingual arteries. Both bore the immediate operation well. Every care in the subsequent treatment was given to them for drainage and disinfection of the mouth, but both developed septic pneumonia, presumably from food infection, the younger on the tenth day, the elder on the fifth day after the operation, resulting in death within forty-eight hours thereafter.

The case of carcinoma of the tonsil and pharynx was in the person of a woman, forty years of age. The disease had begun as a primary affection of the left tonsil, but at the end of a year, when she entered the hospital, the adjacent tissues of the pharynx and soft palate and the cervical glands had become involved. The removal of the affected parts demanded an extensive dissection of the neck, floor of the mouth, palate, and pharyngeal wall, with division of the body of the lower jaw, and ligation of both the external and internal carotids and excision of a portion of the internal jugular vein of the affected side, and a final tracheotomy to insure a supply of pure air to the lungs. Much blood was unavoidably lost, but the chief symptoms displayed at the close of the operation were caused by the interference with the cerebral circulation, as manifested by coma, Cheyne-Stokes respiration,

and right-sided paralysis, which symptoms persisted until death supervened at the end of fifty hours.

The case of carcinoma of the naso-pharynx was in the person of a male, forty years of age, in whom the symptoms of intranasal growth had been present for about one year. When admitted the naso-pharyngeal space was filled with the growth, which had also spread into the left pharyngeal wall. An incomplete removal was effected, after longitudinal division of the floor of the nose and roof of the mouth and alveolar process by saw, forceps, and knife had been done, and the bones of the face had been forcibly separated so as to permit of more ready access to the growth. Rapid recurrence of the growth followed, with death within six months.

The cases of carcinoma of the lower jaw were all in men, aged respectively fifty-one, fifty-one, fifty-three, fifty-six, fifty-six, and fifty-six years. In three of them the involvement of the lower jaw was secondary, the disease having originated either in the lip (two cases) or in the skin of the chin (one case). In all of these there was extensive infiltration of the adjacent soft tissues of the neck and of the cervical glands. In none of these was anything more than partial removal attempted. In all three the disease progressed to death within a few months. In the remaining three cases the disease developed primarily in the lower jaw itself, but in all the cervical glands were already extensively affected. In all these removal of all the affected tissue was attempted by operation. In one the entire left half of the lower jaw, together with a portion of the right side, as far as the site of the bicuspid teeth, was taken away, also the entire left half of the floor of the mouth, entire left half of the pharynx, and much of the tissues of the upper triangle of the neck. The carotids were preserved, but an inch and a half of the internal jugular was excised. The supports of the tongue having been so largely removed, tracheotomy was done to facilitate respiration. The patient rallied well, and was apparently progressing towards recovery when, during the night of the eighth day, a secondary hæmorrhage occurred which resulted in death.

In the second case the left half of the lower jaw and the

affected cervical glands were extirpated. The internal jugular vein was found involved in the growth and thrombosed. Between one and two inches of it were excised. The man made a rapid and uncomplicated recovery. Within a few weeks after his return home he began to manifest symptoms of pressure within the orbit and the spheno-maxillary fossa of the affected side, which rapidly increased, with meningeal additions, and continued to advance until death resulted three months after the hospital operation. The manner of the metastasis, which took place in this case, may be a matter of speculation. I am inclined to the theory that it was through the regurgitant venous current from the thrombosed jugular vein; the detachment of the infective emboli may very easily have been caused by the manipulations of the vein at the time of the operation. It is equally possible that the metastasis may have already taken place before his admission to the hospital.

In the third case a partial removal of the lower jaw had been done in another state nine months before, and a mass of glands had been removed six months thereafter. He was admitted with recurrence in the ramus of the jaw that had been left at the first operation. He submitted to extirpation of this, with immediate operative recovery, only to rapidly develop a glandular growth at the base of the neck. This was extirpated, and was followed by death from shock and progressive asthenia on the fifth day thereafter.

#### GROUP SUMMARY.

##### *Carcinomata of Face, Nose, and Mouth.*

Total number of cases . . . . . 19

<i>Character of Treatment.</i>		<i>Results.</i>	
No operation . . . . .	1	Subsequent history unknown . . . . .	1
Incomplete extirpation . . . . .	3	Death within six months . . . . .	3
Radical extirpation . . . . .	15	Died from operation . . . . .	5
		Speedy recurrence, with death within one year . . . . .	2
		No local recurrence; death after four years from similar disease in a distant organ . . . . .	1

<i>Character of Treatment.</i>	<i>Results.</i>
	No recurrence during rest of life, eighteen months . . . . . 1
	No recurrence to date, fifteen months and two years respectively, and three cases eight months each . . . . . 5
	Subsequent history unknown . . . . . 1
Total . . . . .	19

## NECK.

The region of the *neck* presents seven cases, classifiable as follows :

Deep tissues of the neck and pharynx . . . . .	2
Larynx . . . . .	2
Œsophagus . . . . .	3
Total . . . . .	7

The two cases in which the growth infiltrated diffusely the deeper tissues of the neck, involving the wall of the pharynx, were considered inoperable and were discharged unimproved. Their further history is unknown.

In the two cases of laryngeal cancer, complete laryngectomy was done in both instances, except that in one the posterior portion of the wings of the thyroid was left to preserve the attachments of the pharyngeal constrictors.

Both patients recovered satisfactorily from the operation. One, a woman, fifty-eight years of age at the time of operation, lived for three years and three months, when she died from local recurrence. The second patient, a man fifty-six years of age, speedily displayed recurrent disease, with metastasis, and died at the end of four months.

Of the cases of œsophageal disease, one was discharged untreated, subsequent history unknown. One died from inter-current pulmonary disease due to infection from the necrotic and infective processes in the growth, and one was subjected to gastrostomy, but died at the end of forty-eight hours, from progressive pre-existing asthenia.

## GROUP SUMMARY.

*Carcinomata of the Neck.*

Total number of cases . . . . . 7

<i>Character of Treatment.</i>		<i>Results.</i>	
No operation . . . . .	4	Subsequent history unknown . . . . .	4
Palliative operation : . . . . .	1	Died from pre-operative exhaustion in forty-eight hours . . . . .	1
Radical extirpation . . . . .	2	Recurrence, with death at end of six and thirty-nine months respectively .	2
<hr/>		<hr/>	
Total . . . . .	7	Total . . . . .	7

## BREAST.

There were thirty-one women admitted on account of mammary carcinomas: of these three were already unmistakably inoperable, and the disease was permitted to progress to its fatal termination without surgical interference. One operable case refused operation; her after history is unknown. The remaining twenty-seven women were subjected to operation for radical extirpation of the growth. The operations in all these cases were extensive in the amount of tissue removed. In all a systematic removal of the axillary glands and fat was done. Wide areas of skin were removed, and large portions of the pectoral muscles were in many of the cases excised. Upon eight patients subsequent operations were also done for the removal of recurrent growths, in two of which the remaining breast required removal for disease developing within it after primary operation upon the opposite gland.

Of the twenty-seven individuals operated upon, the later history of two is unknown. One returned at the end of three months with recurrence in the cicatrix, and after a second extirpation was discharged and has not been since heard from.

In ten other cases there was speedy recurrence *in loco*, indicating the incompleteness of the primary operation, with steady progress thereafter to death, which occurred at periods varying from six months to two and a half years after the primary operation, six of them being within one year.

In two cases there was recurrence in the axilla at periods



of two and a half and three years respectively after operation. These patients are still living, but no further operation is contemplated in their cases.

In four cases there has been no recurrence *in loco*, but there has been a later development of thoracic and abdominal growths, with death after two and a quarter, three, and four years respectively.

Eight patients remain well to date, at periods respectively of ten months, sixteen months, twenty-two months, twenty-two months, three years, three years, three years and six months, and three years and eight months after operation. In two of these cases it is to be noted, however, that a second interference was required to destroy a limited focus of disease in the sternal attachment of the great pectoral muscle. This having been done, no further development of disease has appeared.

One patient remained well when last heard from, in September, 1892, fifteen months after operation.

## GROUP SUMMARY.

*Carcinoma of the Breast.*

Total number of cases . . . . . 31

<i>Character of Treatment.</i>		<i>Results.</i>	
No operation . . . . .	4	Unknown . . . . .	1
		Death within a few months . . . . .	3
Radical extirpation . . . . .	27	Unknown . . . . .	2
		Early recurrence <i>in loco</i> ; second operation; after history unknown . . . . .	1
		Early recurrence <i>in loco</i> ; terminating in death, after periods varying from one-half to two and a half years . . . . .	10
		Later recurrence in axilla, after two and a half and three years; patients still living, but disease progressing . . . . .	2
		No recurrence <i>in loco</i> ; death from internal metastasis, after one, two and a quarter, three, and four years respectively . . . . .	4
		Remain well to date, after ten, sixteen, twenty-two, and twenty-two months, three, three, three and a half, and three and two-third years respectively . . . . .	8
Total . . . . .		Total . . . . .	
31		31	

## ABDOMEN.

Of carcinoma of the abdominal viscera, seventeen cases have come under our care, as follows :

Stomach . . . . .	1
Colon . . . . .	8
Omentum . . . . .	1
Pancreas . . . . .	1
Liver . . . . .	5
Gall-bladder . . . . .	1
Total . . . . .	<hr/> 17

Temporary relief was afforded to the case of gastric carcinoma by a gastro-jejunostomy. Death from asthenia, however, resulted at end of two months.

The cases of disease of the colon were all brought to the hospital for the relief of obstruction to the bowels, most of them in a condition of profound prostration, and without any clue as to the cause of the obstruction. In seven instances an exploratory incision having revealed the character of the obstruction, colostomy was done for its relief. Four of these nevertheless continued to sink, and died within twenty-four hours from the pre-existing exhaustion. The remaining three rallied, and their lives were prolonged, one for two months, and two for about one year each. In the remaining case a right inguinal colostomy was at once made, with relief to the obstruction and temporary improvement in general state. Her subsequent history is unknown.

In the case of *omental carcinoma* an explorative abdominal section was done, only to reveal such diffusion of the growth with invasion of multiple adjacent viscera as to make it inoperable. A post-operative nephritis caused death three days thereafter.

The case of *carcinoma of the pancreas* was admitted on account of obstruction of the bowels. Immediate enterostomy was done; death from return of the obstructive symptoms followed on the twelfth day thereafter. Autopsy revealed carcinoma of pancreas, ileum, and colon.

Five cases of *carcinoma of the liver* were admitted. Three of these were plainly metastatic in origin, and no surgical inter-

ference was attempted. In one of the remaining two an explorative abdominal incision was made, but without benefit other than to confirm the diagnosis. Four of these were kept under observation until their death, after a few weeks. One was discharged, and her subsequent history has not been ascertained.

The *gall-bladder* case was subjected to cholecystotomy for calculi. The distended, thickened, and adherent organ bled profusely during the operation, and after reaction again bled to the degree of fatal anæmia despite saline intravenous infusion. Subsequent examination showed the case to be one of primary carcinoma of the gall-bladder.

## GROUP SUMMARY.

*Carcinomata of Abdominal Viscera.*

Total number of cases . . . . .		17
<i>Character of Treatment.</i>		<i>Results.</i>
No operation . . . . .	4	Died within a short time from the unchecked progress of the disease . . . . . 3
		Subsequent history unknown . . . . . 1
Palliative operation . . . . .	10	Death quickly following operation and hastened by it . . . . . 4
		Death from natural progress of disease at end of twelve days . . . . . 1
		In two months . . . . . 2
		In one year . . . . . 2
		Subsequent history unknown . . . . . 1
Incomplete extirpation . . . . .	3	Death quickly following operation and hastened by it . . . . . 3
Total . . . . .		17
		Total . . . . . 17

## URINARY ORGANS.

Five cases of carcinoma of the urinary organs have been treated, including one case involving the kidney, and four the bladder.

The case of carcinoma of the kidney was in the person of a woman, fifty-three years of age, who was admitted to the hospital with a large tumor filling the right half of the abdomen. An explorative section through the abdominal wall over the most prominent part of the tumor revealed a growth springing from

the right kidney and involving the superjacent colon and mesentery. It was deemed inoperable and the wound closed. The growth steadily advanced, became necrotic, breaking down the cicatrix of the abdominal wound, and establishing a fistula into the bowel, terminating fatally by asthenia at the end of three and a half months.

The four cases of carcinoma of the bladder were all submitted to perineal cystotomy and curettement. One case died at end of one week, one at end of three weeks, and in two life was prolonged for one year.

#### GROUP SUMMARY.

##### *Carcinoma of Urinary Organs.*

Total number of cases . . . . .		5
<i>Character of Treatment.</i>	<i>Results.</i>	
Incomplete operation . . . . .	5	Temporary relief to symptoms, subsequent death from the disease in one week . . . . .
		1
		In three weeks . . . . .
		1
		In three and a half months . . .
		1
		In twelve months . . . . .
		2
Total . . . . .	5	Total . . . . .
		5

#### MALE GENERATIVE ORGANS.

This group includes two cases of carcinoma testis, and three of carcinoma penis.

In one case both testicles were alike diseased, and both were extirpated, together with adjacent enlarged inguinal glands. No benefit resulted from the operation, on account of already present metastatic disease of the abdominal viscera, from which death resulted at end of two months.

In a second case, only one testicle being affected, it was removed, and the patient discharged apparently cured. He died at his home eleven months after the operation from intra-abdominal metastasis.

One case of epithelioma of glans and prepuce refused treatment; after-history is unknown. One case of epithelioma at

base of penis, with enlarged glands in both groins was submitted to wide extirpation of the ulcer and of the affected glands. Recovered from operation, but steadily sank thereafter, and died within a few weeks with symptoms of metastasis in abdominal viscera. In the third case, one of extensive disease of the body of the penis, with enlarged glands in both groins, the penis was amputated close to the pubis, and the affected glands thoroughly removed. After-history: no recurrence to date, a period of one year having elapsed.

## GROUP SUMMARY.

*Carcinoma of Male Generative Organs.*

Total number of cases . . . . .		5
<i>Character of Treatment.</i>		<i>Results.</i>
No operation . . . . .	1	Subsequent history unknown . . . . . 1
Incomplete extirpation . . . . .	2	Death from progressive disease within a few weeks . . . . . 2
Radical extirpation . . . . .	2	Free from recurrence at end of one year . . . . . 1
		Died within one year from intra-abdom- inal metastasis . . . . . 1
Total . . . . .	5	Total . . . . . 5

## FEMALE GENERATIVE ORGANS.

Of this group there presented 2 cases of disease of the labia, 3 of the vagina, 24 of the uterus, and 5 of the ovaries,—34 in all.

The two cases of labial disease were subjected to wide extirpation. Rapid recovery ensued in both. One remained free from disease for three and a half years, when a recurrence began which has been neglected until now, at the end of eighteen months more, it has widely infiltrated the vagina, perineum, and buttocks, and is inoperable.

The second case still remains free from disease at the present date, two years after operation, and is leading an active life.

The three cases of vaginal carcinoma were each already complicated by such extensive involvement of the adjacent bladder and rectal walls as to be clearly inoperable. In two of them no interference was attempted; in one a partial excision was done. All subsequently terminated in death within a few months. Of the twenty-four cases of carcinoma uteri, seventeen were already clearly beyond the possibilities of radical extirpation by reason

of involvement of adjacent organs, extension into broad ligaments, or metastases in internal viscera. Of these, seven for various reasons were submitted to no treatment, and were discharged unimproved, after a brief stay in the hospital; one was admitted—in *extremis*—for operation for relief of intestinal obstruction due to the pressure of the pelvic tumor, was submitted to lumbar colostomy, and died from the shock of the operation; the remaining nine were subjected to curettement and packing with caustic tampons of chloride of zinc. One of these patients died suddenly some hours after the operation with symptoms of cardiac embolism. The others, numbering eight, were all temporarily improved, and in that condition were discharged from the hospital. The after-histories of these patients, who were either untreated or only palliatively treated, have not been ascertained. Their termination in death within a year in all of them is certain.

Of the entire number in only seven was there any encouragement to attempt radical extirpation, and a rigid standard of selection would, perhaps, have properly excluded a majority of these. In one case the carcinomatous uterus and much peri-uterine infiltrated tissue was removed through an abdominal incision. Death ensued on the fourth day thereafter from intestinal paresis and consequent obstruction, without sign of peritonitis or nephritis. Six cases were subjected to vaginal hysterectomy. All made satisfactory and prompt recoveries from the operation. In four of these cases recurrence speedily declared itself either within the pelvis or the abdomen, one dying within four months, and three within twelve months, after the operation. In the two remaining cases no recurrence has as yet manifested itself, at the end of two years in one case and eight months in the other.

Of the five cases of carcinoma of the ovaries in three the condition was already inoperable, by reason of the extent to which adjacent tissues and organs had become involved. Two of these were subjected to no surgical interference; in the third case an exploratory abdominal incision was made, and a large quantity of ascitic fluid evacuated, to the temporary relief of the patient. The after-history of these cases has not been ascertained. Death within a few months was certain. In the fourth

case, a girl of twenty-five years, there was a large tumor of the ovary extending above the umbilicus, densely adherent over its upper surface to the anterior parietal wall of the abdomen, and with other adhesions to the omentum. It was removed without special difficulty, and the patient made a smooth recovery. At the end of one year a nodular infiltration of the wall of the abdomen, over the site of the former adhesions, had become perceptible. This slowly increased, while axillary, cervical, and thoracic glandular enlargements developed, terminating in death by asthenia three and a half years after the removal of the ovary. In the fifth case the primary growth had been removed at another hospital some two years before. When she presented herself to us there were multiple secondary growths in the abdomen, and marked glandular enlargements in thorax and neck. She was much prostrated and lived but a few days after admission, no surgical interference having been done.

## GROUP SUMMARY.

*Carcinoma of Female Generative Organs.*

Total number of cases . . . . . 34

*Character of Treatment.**Results.*

No operation . . . . .	12	In all unchecked progress of the disease, in one, death within a few days, in the remainder, death within a year probable, but not ascertained . . .	12
Palliative operation . . . . .	2	Death from shock of operation . . .	1
		Temporary relief to symptoms; disease unchecked . . . . .	1
Incomplete extirpation . . . . .	10	Operative death from cardiac embolism . . .	1
		Temporary relief to symptoms; ultimate death from progressive disease . . .	9
Radical extirpation . . . . .	10	Operative death from intestinal paresis . . .	1
		Speedy recurrence and death within one year . . . . .	4
		Recurrence at end of one year; death at end of three and a half years . . .	1
		Recurrence at end of three and a half years; still living, but inoperable at time of report . . . . .	1
		Well after eight months . . . . .	1
		Well after two years . . . . .	2
Total . . . . .	34	Total . . . . .	34

## RECTUM.

The cases of rectal carcinoma numbered sixteen : of these seven were situated at some point between the sigmoid flexure and the lower three inches of the rectum, being properly called "high-lying"; and nine involved more or less of the lower three inches of the rectum; to these latter I give the term carcinoma of the outlet of the rectum.

Of the "high-lying" growths, in two operative relief was declined, and the patients were discharged without further treatment. One of these is known to have died at his home about eighteen months later; the after-history of the second is unknown. Three patients were admitted on account of more or less complete obstruction of the bowels, with growths widely infiltrating the pelvic tissues. They were all submitted to immediate colostomy. One of them was relieved, rallied from her existing exhaustion, and was discharged with a permanent artificial anus. Her after-history is unknown. A second case did not rally from her pre-operative collapse, but died from asthenia within twenty-four hours after admission. The third case died on the fifth day after operation from renal suppression. In the two remaining cases an attempt at radical extirpation was made access to the growth being afforded by excision of the coccyx and lower lateral segment of the sacrum. In one of these cases the growth was found to so widely infiltrate the tissues of the pelvis as to make its entire removal impracticable. The diseased segment of the rectum was removed and further operative effort desisted from. The operative anæmia and shock was great, and determined death forty hours afterwards. In the remaining case the diseased segment of the rectum was enucleated and excised and the upper part of the gut brought down and stitched to the lower part. Several enlarged post-rectal glands were also removed. The patient, a man of sixty-one years, reacted slowly; then gradually sank and died by asthenia on the fourth day after the operation.

Of the nine cases of growth at the outlet of the rectum three were plainly inoperable when admitted; two of these returned home after a brief stay in the hospital with evidently but a



few weeks to live; the third patient was submitted to an inguinal colostomy which afforded much relief, her life being prolonged for seven months.

In the remaining six patients radical extirpation of the diseased tissues was done; all made uninterrupted recoveries from the operation. Of these no subsequent information has been received in two cases; local recurrence manifested itself in a short time in one case with death by exhaustion within one year from the operation, in a second case the local recurrence became manifest at the end of a year, and was not arrested by a second operation, but terminated in death in about two years after the primary operation; yet another case died at the end of eighteen months from recurrent disease, the exact locality of which is unknown, and the last case died one year after operation from abdominal cancer.

## GROUP SUMMARY.

*Carcinoma of Rectum.*

Total number of cases . . . . .		16
<i>Character of Treatment.</i>		<i>Results.</i>
No operation . . . . .	4	Further history unknown . . . . . 3
		Death after eighteen months . . . . . 1
Palliative operation . . . . .	4	Death from operation . . . . . 1
		Death from pre-existing exhaustion . . 1
		Temporary relief, ultimate death, date unknown . . . . . 1
		At end of seven months . . . . . 1
Incomplete extirpation . . . . .	1	Death from operation . . . . . 1
Radical extirpation . . . . .	7	Death from operation . . . . . 1
		Further history unknown . . . . . 2
		Speedy recurrence <i>in loco</i> . Death after six, eighteen, and twenty-four months respectively . . . . . 3
		No recurrence <i>in loco</i> . Death from abdominal metastases after one year 1
Total . . . . .	16	Total . . . . . 16

## THE EXTREMITIES.

Only two cases of carcinoma of an extremity have come under observation; one a limited epithelioma, seated upon the back of the hand of a woman sixty years of age, was widely excised. The further history of the case is unknown.

The second, an epithelioma of the hand in a woman seventy-four years of age, had been already operated upon elsewhere three times, at intervals of about six months each time. She now presented herself with enlarged epitrochlear and axillary glands, and with evident metastatic deposits in the liver. The condition was inoperable, and death by asthenia occurred in about three months thereafter.

#### GROUP SUMMARY.

##### *Carcinoma of the Extremities.*

Total number of cases . . . . . 2

<i>Character of Treatment.</i>		<i>Results.</i>	
No surgical treatment . . . . .	1	Death after three months . . . . .	1
Radical extirpation . . . . .	1	After-history unknown . . . . .	1
Total . . . . .	2	Total . . . . .	2

#### SARCOMATA.

The cases of sarcoma that have come under our observation have been thirty-four in number, originating as follows: one in the brain, seven in lymph-glands, six in secretory glands, thirteen in bones, and seven in intermuscular or superficial connective tissue.

#### BRAIN.

The brain tumor occurred in the person of a man, thirty-four years of age, who was admitted with well-marked symptoms of brain tumor, which had developed subsequent to an injury to the head sustained six years previously. The localizing symptoms were very indefinite. The indications for relief were urgent, and it was deemed justifiable to make an exploratory invasion of the part of the brain in the left parieto-occipital region, at which point the cicatrix of the previous injury was distinct. No tumor was found here, however, and the patient died at the end of thirty-eight hours thereafter, from the shock of the operation. The autopsy revealed a colossal glioma of the anterior half of the left hemisphere of the cerebrum.

## GROUP SUMMARY.

*Sarcoma of Brain.*

One case.

<i>Character of Treatment.</i>		<i>Result.</i>
Explorative operation . . . . .	I	Death from operation . . . . . I

## LYMPH-GLANDS.

In this group are included two cases originating in the pre-auricular lymph-gland, four in the cervical glands, and one in the axillary glands. In one of these the already present marked evidences of extensive disease in the thorax showed the case to be plainly inoperative, and no surgical interference was attempted. The after-history of the case is unknown.

In a second case a similar condition should have negated any interference, but at the earnest solicitation of the patient all the cervical growths were removed; death from the intrathoracic disease occurred at the end of four months thereafter.

In two cases, one of the axilla and one of the neck, thorough extirpation of the diseased masses was done; followed in the first case by the appearance of enlargements, both *in loco* and in various other regions of the body within a few months, and death by asthenia within a year, and in the second case no recurrence to date, three months having elapsed.

In a third case, a cervical growth, radical extirpation was performed, but the after-history is unknown.

The two cases of sarcoma of the pre-auricular lymph-gland were both subjected to radical extirpation. Of one case the after-history is unknown; of the second, there is no recurrence till the present date, a period of one year.

## GROUP SUMMARY.

*Sarcomata of Lymph-Glands.*

Total number of cases . . . . .		7
<i>Character of Treatment.</i>		<i>Results.</i>
No operation . . . . .	I	After-history unknown . . . . . I
Incomplete extirpation . . . . .	I	Death after four months . . . . . I
Radical extirpation . . . . .	5	Speedy recurrence both <i>in loco</i> and at a distance, with death . . . . . I
		No recurrence to date, one year . . . . . 2
		After-history unknown . . . . . 2
Total . . . . .		7
		Total . . . . . 7

## SECRETORY GLANDS.

In this group are six cases, made up of one of the parotid gland, one of the prostate, and four of the testicle.

The tumor of the parotid had already invaded the adjacent structures of the jaw and neck. An incomplete extirpation was done for the relief of pain. The uninterrupted advance of the disease resulted in death within a few months.

The tumor of the prostate was in the case of a man, seventy-eight years of age, who was admitted in a moribund condition. No operation was done. The patient died within twenty-four hours.

The cases of disease of the testicle all occurred in comparatively young men, the oldest patient having been forty-two years of age, the youngest nineteen. All applied for relief early in the history of the disease. All were submitted to radical extirpation, but the after-history of none has been ascertained.

## GROUP SUMMARY.

*Sarcomata of Secretory Glands.*

Total number of cases . . . . .		6
<i>Character of Treatment.</i>	<i>Results.</i>	
No operation . . . . .	1	Death within twenty-four hours . . . . . 1
Incomplete extirpation . . . . .	1	Death within a few months . . . . . 1
Radical extirpation . . . . .	4	After-history unknown . . . . . 4
Total . . . . .	6	Total . . . . . 6

## BONES.

Of 13 patients affected with sarcoma of bone, which have been under observation, the disease originated in the frontal bone in 1 case; in the superior maxilla in 2 cases; in the inferior maxilla in 1 case; in the humerus in 1 case; in the ribs in 1 case; in the ischium in 1 case; in the femur in 4 cases; and lastly in the tibia in 2 cases.

In the case of frontal bone-disease, secondary growths in the clavicle and one rib had already developed before admission. All three growths were freely excised. Immediate recurrence at each site followed, with final death after five months.

In the cases of upper-jaw disease, in 1 nothing but a pallia-

tive curettement was attempted. The unchecked disease ended in death within the year. In the second case a total extirpation of the affected bone was done. There followed, however, immediate recurrence *in loco*. Injections of erysipelatous toxines were then instituted, but after a few injections without positive results the patient declined further treatment. His present condition is unknown.

For the sarcoma of the lower jaw, total extirpation of the right half of the bone was done. The recovery from the operation was smooth, but speedy recurrence *in loco* followed, with death within a few months thereafter.

The sarcoma of the humerus developed at the site of a fracture sustained three years previously. Three months previous to admission, spontaneous fracture from muscular action occurred at the site of original fracture. Exploratory incision revealed sarcomatous degeneration, a diagnosis which was later confirmed by the pathologist. Amputation at the shoulder-joint was done. Eighteen months later patient remained well.

The sarcoma of the ribs was in the person of a woman, fifty-four years of age. When she came under observation there was a very large growth springing from the right lateral wall of the thorax behind the breast, which gland was lifted up by it and was not involved. When exposed during operation the growth was found to involve the periosteum of the third, fourth, fifth, and sixth ribs, and the corresponding intercostal soft tissues. It was peeled away as completely as possible. The patient made a smooth recovery, and has ever since pursued her calling as a stewardess on an ocean steamship. No external recurrence has developed, but there are now well-marked evidences of intrathoracic and abdominal growths.

The sarcoma of the ischium occurred in a child, eighteen months of age. The growth, springing from the internal surface of the left ischium, extended to the sacrum, and formed a mass which nearly filled the cavity of the pelvis and extended upward above the pelvic brim. Obstruction to the passage of fæces had resulted, which symptom was the immediate cause of application for relief. Inguinal colostomy was advised, but declined by the parents of the infant. The child died at home, unrelieved, within a few days.

Of the 4 cases of sarcoma of the femur, in one, a woman of forty-six years of age, the case had been supposed to be one of tuberculosis at the knee, and in the course of operation for excision its true nature was first revealed. Amputation through the middle of the femur was at once substituted for the excision, with the idea of the removal of the entire bone at the hip later, after the consent of the patient had been obtained. But the patient died within forty-eight hours from the operative shock.

The remaining three cases were all submitted to amputation at the hip-joint. All recovered smoothly from the operation. One remains well to date, two years after operation; the remaining two soon developed abdominal and thoracic metastases, and died within a few months.

Of the two cases of sarcoma of tibia, both were at once amputated at the knee-joint. In one case recurrence in the stump followed within a few months, with later thoracic metastasis and death in about one year after the primary operation. In the other case the patient remained free from recurrence till her death from other disease, two and a half years later.

#### GROUP SUMMARY.

##### *Sarcomata originating in Bone.*

Total number of cases . . . . .		13
<i>Character of Treatment.</i>		<i>Results.</i>
Incomplete extirpation of affected bone . . . . .	6	Death from operation . . . . . 1
		Immediate recurrence <i>in loco</i> , with ultimate death . . . . . 4
		In good health three years; ultimate recurrence in thoracic and abdominal viscera . . . . . 1
Complete extirpation of affected bone . . . . .	6	Remaining well to date. At periods of one and a half to two years respectively . . . . . 2
		Remained free from recurrence during rest of life, two and a half years . . . 1
		Speedy metastatic recurrence, with ultimate death . . . . . 3
No operation . . . . .	1	Death . . . . . 1
Total . . . . .	13	Total . . . . . 13

## SKIN AND INTERMUSCULAR CONNECTIVE TISSUE.

The skin or intermuscular connective tissue was the site of disease in 7 instances. Of these, 2 were located upon the fingers, 3 upon the thigh, 1 in the gluteal region, and 1 in the bladder.

The two finger cases and two of the thigh cases were superficial, and were readily excised with an abundant zone of sound tissue.

The later history of these cases is unknown, except in one of the finger cases, in which the little and ring finger and the corresponding portion of the hand were amputated on account of sarcoma arising upon the little finger. No local recurrence has since taken place, one year and a half having elapsed, but a recurrence at the elbow is reported to be present.

In the third thigh case the growth sprang from the sheath of the vessels in Hunter's canal, and formed an ovoid tumor of about five inches longest diameter in the inner side of the thigh. It was well encapsulated, and was enucleated and excised. At the end of a year the patient reported himself as well. Shortly thereafter a new growth was detected *in loco*. Six months later the patient presented himself for renewed operative treatment, the recurrent growth widely infiltrating the tissues of the thigh. Amputation at the hip-joint was done, with clean excision of all the soft tissues in the inside of the thigh from their pelvic insertions. Death ensued within twenty-four hours from the shock of the operation.

The gluteal growth was a large mass infiltrating the left gluteal region. It was thoroughly extirpated. No subsequent recurrence *in loco* occurred, but death supervened two months later from abdominal metastasis.

The bladder sarcoma was subjected to curettement through a perineal incision, with relief to the immediately pressing bladder symptoms. Death by asthenia four months later followed.

## GROUP SUMMARY.

*Sarcomata originating in Skin and Intermuscular Connective Tissue.*

Total number of cases . . . . .		7	
<i>Character of Treatment.</i>		<i>Results.</i>	
Incomplete extirpation . . . . .	1	Death after four months . . . . .	1
Radical extirpation . . . . .	6	After-history unknown . . . . .	3
		No recurrence <i>in loco</i> ; recurrence in distant parts . . . . .	2
		Recurrence <i>in loco</i> ; death from secondary operation . . . . .	1
<hr/>			<hr/>
Total . . . . .	7	Total . . . . .	7

## RÉSUMÉ.

From the data given above it appears that out of the 136 cases of carcinomata that presented themselves in the surgical service of this hospital during a brief period considerably more than one-half—namely, 72—were already unquestionably beyond the possibility of successful surgical relief. In 31 of these cases no operative interference was attempted; in 17 of them palliative operations, such as gastrostomy, enterostomy, colostomy, and paracentesis abdominis, were indicated and were performed, and in the remaining 24 incomplete extirpations, consisting of curettings and cauterizations, were done for temporary relief of symptoms. So profound was the depression and exhaustion, already present in many of these cases, that a considerable mortality attached directly to these palliative and incomplete operations, since there were eleven operative deaths following upon the 41 operations of this character performed.

In the cases of 64 of the patients, however, the promise of possible radical extirpation was sufficiently great to justify the attempt. These attempts were always planned so as to carry the excision through sound tissues as widely from the disease as respect to important functions and to life would permit.

In seven instances death was the direct result of these operative attempts. The later history of six of the patients who recovered from operation has not been ascertained, leaving thus 51 individuals to illustrate the value or the futility of these



attempts at radical extirpation. Of these in 22 the speedy reappearance of the disease in the operated region proved its previous diffusion beyond the tissues removed by the knife, while in six more, without reappearance *in loco*, the steady development of metastatic growths in internal viscera proved that the hopes that had been entertained as to possible radical extirpation had been erroneous.

Conscious as I am of the thoroughness and extensiveness of the efforts which were made in all these cases to eradicate the disease, I feel that I am justified by the event in classifying them as cases that came too late to the operating-table, belonging properly to the same class as those that when first seen were frankly inoperable. Many of these cases were subjected to second, some even to third and fourth operations. But the ultimate appearance of internal metastases ushered in the fatal event in them all. Such a record, black and forbidding as it is, simply serves to anew emphasize the teaching that to temporize and to delay with growths that may possibly be carcinomatous is in the highest degree dangerous and culpable. Such delay is in many instances the fault of the patients, who refuse to admit to themselves the possibility of the development of cancer in their persons, but much more frequently it is the fault of physicians who seek to allay the fears of patients by assurances of the insignificant nature of the "lump" or the sore for which they seek advice.

Twenty-three patients yet remain to be accounted for. Of these, after periods of immunity varying from one to three years, carcinoma reappeared in the region originally affected in four cases; in one case it reappeared in a distant part of the body, and in eighteen cases there has as yet appeared no recurrence. The periods which have elapsed in these so far cured cases are yet too brief for forming any opinion as to the ultimate result in them, being 3 years and over in 4 cases; between 2 and 3 years, 3 cases; between 1 and 2 years, 6 cases; 10 months, 1 case; and 8 months, 4 cases.

The records of the cases of sarcomata are quite parallel with those of the carcinomata. Of the thirty-four cases, thirteen were plainly beyond the possibility of radical extirpation; in ten

of these operations of a palliative and incomplete nature were done, with two operative deaths. In three no operative interference was done.

Of the 21 cases in which attempts at radical extirpation were made there were no operative deaths; the after history of 9 is unknown; of the remaining 12 cases, in 2 there was speedy recurrence *in loco*, and in 5 there followed progressive development of metastases in internal viscera without local recurrence. The remaining 5 continue well to date, after periods of from one to two and a half years *post-operationem*.